

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 January 2008 has been entered.

Applicants' discussion as to the meaning of Y'-F<sub>1</sub> has overcome the objection to the disclosure. 35 USC 112, first paragraph rejection and the 35 USC 112, second paragraph over claim 123. Applicants' arguments have clarified the meaning of claim 113 and thus the rejection is withdrawn. Applicant's arguments with respect to the art rejection over claims 114-124 have been fully considered but they are not persuasive.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 114-126 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication 2002/0010291.

This reference teaches a mixture of a functionalized ionic liquid combined with a non-functionalized ionic liquid (para. [0054]). This teaching suggests any combination of these liquids, which allows for mixtures where the non-functionalized ionic liquid acts as the matrix and the functionalized ionic liquid is dissolved therein. The reference teaches the non-functionalized liquid can be any known ionic liquid, which includes of claims 119, 121 and 124. The functionalized ionic liquid is one where the anion is one of those claimed in claims 85, 122 and 124 and the cation is functionalized, such as a pyridinium or an ammonium, where the functional group is a halogen, SCN, CN, OH, OR, OCOR, COOR and O<sub>2</sub>SR, where R is an alkyl

group with 1-20 carbon atoms, and it is linked to the cation by an alkyl group having 1-50 carbon atoms. These functional groups include those claimed. Therefore the taught functionalized salt is recyclable and would have the claimed capability, absent any showing to the contrary. The reference encompasses compositions where the anions of both liquid can be same. There is no indication that functionalized and nonfunctionalized liquids react with each other nor that they can be extracted from each other by solvent extraction, i.e. are dissolved in each other and form a homogenous mixture. The reference suggests the claimed composition.

Applicants argue that the functionalized salt is not a soluble support reaction support, but there is no evidence presented to support this assertion. The reference suggests ionic liquids having the same cations, anions and functional groups as claimed and therefore the suggested ionic liquid would be expected to have the same properties, when the cations, anions and functional groups are the same as claimed, which means it would act as soluble reaction medium. This argument is not convincing.

The intended use of the taught composition does not patentably distinguish the taught composition over the claimed composition. The reference teaches the functional groups bond a catalyst or scavenger to the rest of the ionic liquid and it is well known in the art that the bond between a functional group and the catalyst or scavenger are reversible and thus the ionic liquid can be recycled by removing the catalyst or scavenger. Applicants are reminded that the claims are directed to a composition comprising a functionalized ionic salt dissolved in a non-functionalized ionic liquid matrix, where the functional group catches one or more molecules, which reads upon the taught catalyst and scavenger. Thus this argument is not convincing.

Applicants argue the reference does not teach or suggest that the functionalized ionic liquid dissolves in the non-functionalized liquid or that it forms a homogenous mixture with the non-functionalized ionic liquid. As stated above, there is no indication that the ionic liquids can be extracted from each other by solvent extraction, i.e. are dissolved in each other and form a homogenous mixture. Since the both liquids can those claimed, this would suggest that they are dissolved in each other and form a homogenous mixture, absent any showing to the contrary. The fact the ionic liquid does not dissolve in a hydrocarbon alkane or aromatic co-solvent does not mean that it would not dissolve in a non-functional ionic liquid, which has different properties than the disclosed solvents.

The declaration under 37 CFR 1.132 filed 14 January 2008 is insufficient to overcome the rejections as set forth in the last Office action because:

It states that the claimed subject matter solved a problem that was long standing in the art. However, there is no showing that others of ordinary skill in the art were working on the problem and if so, for how long. In addition, there is no evidence that if persons skilled in the art who were presumably working on the problem knew of the teachings of the above cited references, they would still be unable to solve the problem. See MPEP § 716.04. The provided articles and textbook chapter were all published at least 4 years after the date of the French priority application and they refer to this application. There fore there is no evidence of long-felt need.

The statement in the declaration that the claimed invention is a major breakthrough is an opinion unsupported by the evidence on the record. Three out of the four articles cited in the declaration have at least one of the inventors as an author and none of the articles state the

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claimed composition is a major breakthrough in the art. The fact that the articles state use of functionalized ionic liquids in organic synthesis is an advantage does not mean that the claimed composition is a major breakthrough in the art. In view of the foregoing, when all of the evidence is considered, the totality of the rebuttal evidence of nonobviousness fails to outweigh the evidence of obviousness.

The rejection is maintained.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 113 is rejected under 35 U.S.C. 102(b) as being anticipated by the article by Frage-Dubreuil et al.

This article teaches a recyclable ionic liquid salt having a functionalized cation, where the functionalized cation has the claim ability of converting initial functional groups to other functional groups.. The liquid is soluble in itself and thus has both claimed parts. The reference teaches the claimed composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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/cmk/  
April 4, 2008

/C. Melissa Koslow/  
Primary Examiner  
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